

AMENDMENTS TO THE CLAIMS

Claims 1-23 (canceled)

24. (new) A paging control method executed by a paging control apparatus in a mobile network including a core network, a radio access network, and a mobile communication terminal, wherein the radio access network includes a plurality of base stations, and a radio network controller serving as the paging control apparatus, the paging control apparatus includes at least two controllers that functionally distribute communication between the core network and the base stations to control the communication, one of the controllers processing a paging message transmitted from the core network to the radio access network, and wherein the mobile communication terminal performs communication with the base station via a radio interface, the paging control method comprising:

receiving the paging message transmitted from the core network to the radio access network;

judging a transmission destination of the paging message; and

transmitting the paging message to a controller that controls a base station at the transmission destination.

25. (new) The paging control method according to claim 24, wherein the mobile communication terminal is in a state in which connection is not established between the mobile communication terminal and any one of the radio access network and the core network, and

when the mobile communication terminal is in the state in which connection is not established between the mobile communication terminal and any one of the radio access network and the core network, the act of judging includes judging that the transmission destination of the paging message is a controller that controls any one of a predetermined base station and a base station specified in the paging message.

26. (new) The paging control method according to claim 25, wherein there are a plurality of any one of the base stations and the controllers, and when there are the plurality of any one of the base stations and the controllers, the act of transmitting includes transmitting the paging message according to multicast transmission.

27. (new) The paging control method according to claim 24, wherein the mobile communication terminal is in a state in which connection is established between the mobile communication terminal and any one of the radio access network and the core network, and

when the mobile communication terminal is in the state in which connection is established between the mobile communication terminal and any one of the radio access network and the core network, the act of judging includes judging that the transmission destination of the paging message is a controller that controls the connection.

28. (new) A paging control apparatus in a mobile network that includes a core network, a radio access network, and a mobile communication terminal, wherein the radio access network

includes a plurality of base stations and a radio network controller, the radio network controller includes at least two controllers that functionally distribute communication between the core network and the base stations to control the communication, one of the controllers being used as the paging control apparatus, and wherein the mobile communication terminal is configured to perform communication with the base station via a radio interface, the paging control apparatus comprising:

a processing unit configured to receive a paging message transmitted from the core network to the radio access network, and to transmit the paging message to a predetermined mobile communication terminal.

29. (new) The paging control apparatus according to claim 28, further comprising:

a connection information registering unit configured to register signal connection information including a first indication of whether a first connection between the mobile communication terminal and the radio access network exists, a second indication of whether a second connection between the mobile communication terminal and the core network exists, and a controller configured to control any one of the first connection and the second connection, wherein

the paging message is a paging message sent to a mobile communication terminal having any one of the first connection and the second connection, and

when the paging message is the paging message sent to the mobile communication terminal having any one of the first connection and the second connection, the processing unit refers to the signal connection information to specify any one of a controller and a base station

that controls the connection, and transmits the paging message to any one of the controller and the base station.

30. (new) The paging control apparatus according to claim 29, wherein the signal connection information includes

first connection information including the first connection, a first identifier that temporarily identifies the mobile communication terminal, and a first controller configured to control the first connection, and

second connection information that associates the first identifier with a second identifier having a number form peculiar to the mobile communication terminal, if the mobile communication terminal sets the second connection, and

upon receiving a paging message from the core network, the processing unit refers to the signal connection information to specify the first controller, which controls the first connection associated with the second identifier included in the paging message, and transmits the paging message to the first controller.

31. (new) The paging control apparatus according to claim 30, wherein

the second connection information further includes a third identifier having a number form peculiar to the core network and associated with the first identifier and the second identifier, when the core network notifies the mobile communication terminal of the third identifier, and

upon receiving a paging message from the core network, the processing unit refers to the

signal connection information to specify the first controller, which controls the first connection associated with the third identifier included in the paging message, and transmits the paging message to the first controller.

32. (new) The paging control apparatus according to claim 29, wherein
the paging message is a paging message sent to a mobile communication terminal not
having connection, and

when the paging message is the paging message to the mobile communication terminal
not having connection, the processing unit transmits the paging message to a controller that
controls any one of a predetermined base station and a base station specified in the paging
message.

33. (new) The paging control apparatus according to claim 32, wherein
a plurality of any of the controllers and the base stations are specified, and
when the plurality of any of the controllers and the base stations are specified, the
processing unit copies the paging message, and transmits copied paging message to all the
controllers and all the base stations.

34. (new) The paging control apparatus according to claim 32, wherein
a plurality of any one of the controllers and the base stations are specified, and
when a plurality of any one of the controllers and the base stations are specified, the
processing unit transmits the paging message to any of the controllers and the base stations

according to multicast transmission.

35. (new) The paging control apparatus according to claim 32, wherein
a call area is registered in advance,
the controller further includes a second controller that controls a base station within a call
area of the mobile communication terminal decided by the core network, and a third controller
that controls data transfer to the base station controlled by the second controller, and
if the controller further includes the second controller and the third controller, upon
receiving a paging message from the core network, the processing unit transmits the paging
message to any one of the second controller and the third controller using a multicast address of
any one of the second controller and the third controller associated with the call area registered in
advance.

36. (new) A radio access network comprising:
a plurality of base stations configured to perform communication with a mobile
communication terminal via a radio interface; and
a radio network controller that is connected to a core network and that includes at least
two controllers that functionally distribute communication between the core network and the
base station, and that is configured to control the communication, wherein
at least one of the controllers is a paging control apparatus including a processing unit
configured to process a paging message transmitted from the core network to the radio access
network.

37. (new) The radio access network according to claim 36, wherein

the paging control apparatus further includes a connection information registering unit configured to register signal connection information including a first indication of whether a first connection between the mobile communication terminal and the radio access network exists, a second indication of whether a second connection between the mobile communication terminal and the core network exists, and a controller configured to control any one of the first connection and the second connection,

the paging message is a paging message sent to a mobile communication terminal having any one of the first connection and the second connection, and

when the paging message is the paging message sent to the mobile communication terminal having any one of the first connection and the second connection, the processing unit refers to the signal connection information to specify a controller that controls the connection, and transmits the paging message to the controller.

38. (new) The radio access network according to claim 37, wherein

the signal connection information includes

first connection information including the first connection, a first identifier that temporarily identifies the mobile communication terminal, and a first controller configured to control the first connection, and

second connection information that associates the first identifier with a second identifier having a number form peculiar to the mobile communication terminal, if the mobile

communication terminal sets the second connection, and

upon receiving a paging message from the core network, the processing unit of the paging control apparatus refers to the signal connection information to specify the first controller, which controls the first connection associated with the second identifier included in the paging message, and transmits the paging message to the first controller.

39. (new) The radio access network according to claim 38, wherein

the second connection information further includes a third identifier having a number form peculiar to the core network and associated with the first identifier and the second identifier, when the core network notifies the mobile communication terminal of the third identifier, and

upon receiving a paging message from the core network, the processing unit of the paging control apparatus refers to the signal connection information to specify the first controller, which controls the first connection associated with the third identifier included in the paging message, and transmits the paging message to the first controller.

40. (new) The radio access network according to claim 37, wherein

the paging message is a paging message sent to a mobile communication terminal not having connection, and

when the paging message is the paging message sent to the mobile communication terminal not having connection, the processing unit of the paging control apparatus transmits the paging message to a controller that controls any one of a predetermined base station and a base

station specified in the paging message.

41. (new) The radio access network according to claim 40, wherein
a plurality of the controllers are specified, and
when the plurality of the controllers are specified, the processing unit of the paging
control apparatus copies the paging message, and transmits copied paging message to all the
controllers and all the base stations.

42. (new) The radio access network according to claim 40, wherein
a plurality of the controllers are specified, and
when the plurality of the controllers are specified, the processing unit of the paging
control apparatus transmits the paging message to any one of the controllers and the base stations
according to multicast transmission.

43. (new) The radio access network according to claim 40, wherein
a call area is registered in advance,
the controller includes a second controller that controls a base station within a call area of
the mobile communication terminal decided by the core network, and a third controller that
controls data transfer to the base station controlled by the second controller, and
if the controller further includes the second controller and the third controller, upon
receiving a paging message from the core network, the processing unit of the paging control
apparatus transmits the paging message to any one of the second controller and the third

controller using a multicast address of any one of the second controller and the third controller associated with the call area registered in advance.

44. (new) The radio access network according to claim 43, wherein
a multicast address of the third controller associated with the second controller is
registered in advance, and
upon receiving the paging message from the paging control apparatus, the second
controller transmits the paging message to the third controller using the multicast address.

45. (new) The radio access network according to claim 44, wherein
a multicast address including all base stations controlled by the third controller is
registered in advance, and
upon receiving the paging message from the second controller, the third controller
transmits the paging message to the base station using the multicast address.

46. (new) The radio access network according to claim 43, wherein
a multicast address including all base stations controlled by the third controllers is
registered in advance, and
upon receiving the paging message from the second controller, the third controller
transmits the paging message to the base station using the multicast address.